IMPACT OF ARTIFICIAL INTELLIGENCE DURING COVID-19 PANDEMIC

Dr. Geetanjali Amarawat[1,] Dr. Bhavesh Kumawat[2,] Vaghela Falguni Vinodbhai[3]

[1]Vice Principal, Swaminarayan College of Engineering and Technology, Kalol-Gandhinagar, Gujarat, India

[2]Associate Professor, Department of Computer Science & Engineering, Madhav University, Abu Road, Rajasthan, India

[3]Research Scholar, Department of Computer Science & Engineering, Madhav University, Abu Road, Rajasthan, India

Abstract

On 24 March 2020, the Government of India under Prime Minister Narendra Modi has given order for the nationwide lockdown for 21 days, limiting movement of the entire 1.3 billion population of India as a preventive measure against the COVID-19 pandemic in India. It was ordered after a 14-hour voluntary public curfew which was held on 22 March 2020. The lockdown was applied in all over the India when the number of confirmed positive coronavirus cases was around 500 in India. During lockdown many AI technology was useful to stay home with all joy happiness and entertainment. Basic technologies from them are Carawan, Alexa, Robo car for kids, car with sensors for kids, mini robot. Miko-2 and many more for daily life's entertainment in the family. Even sanitization tunnel is good example of the same. If we see in Academics then Google meet. Google classrooms, Online Digital Educations in schools and colleges, online exams and results, work from home in almost all sectors and all. The most interesting invention during this period is introduced by Cognize that is AI based temperature check, mask screening and best solution to maintain social distancing. There are more data-driven and top-down orchestration of pandemic preparedness and remediation among public, private, and non-profit organizations. China's experience is instructive in this regard. Though the outbreak's inception in Wuhan was less than half a year ago, the country has responded rapidly with a top-down, nationwide approach to manage the crisis. Chinese authorities are orchestrating vast resources to save lives, control the spread of infection, and guide individuals for testing, treatment, and quarantining.

Index Terms: AI, Pandemic Covid-19, Cognize, Mask, Social Distancing

INTRODUCTION

People, Health and Safety is an autonomous solution combining video, thermal, voice and biometric sensors with optimized hardware, software and AI to reduce the frustration and logistical complexity of complying with new public health mandates. By using humanlike thinking method and Ambient Intelligence technology to know, see, sense and assess more information faster than the human mind ever could, the platform's cognitive learning engine observes, correlates and presents recommendations for real-time action that can captures and presents relevant situations and events limiting human error and allowing companies to save time and utilize resources in more efficient manner.
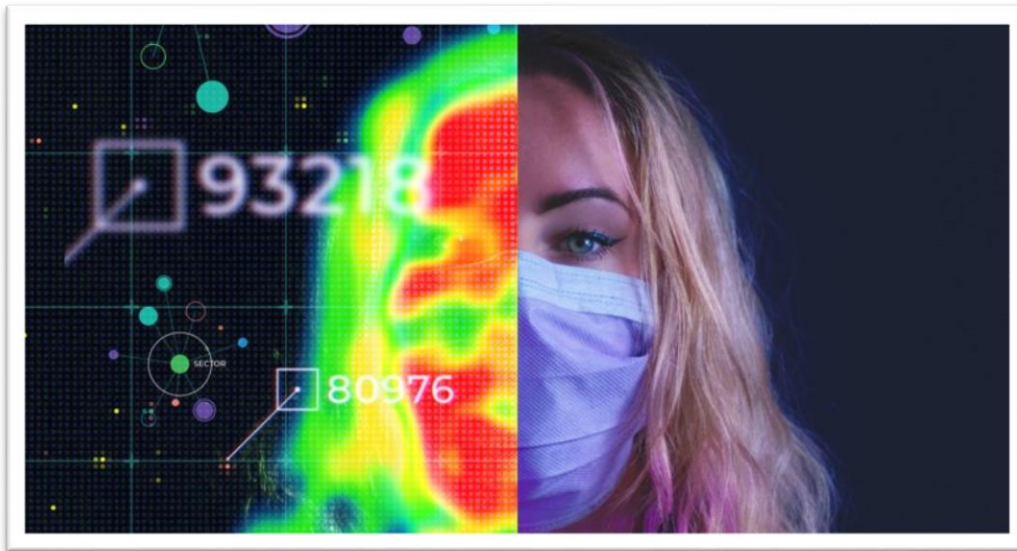
Figure 1 AI technology-based Mask

Cognize, a health science and technology company that enables institutions and companies to improve health and safety through the concept of Artificial Intelligence based cognitive solutions, launched its People, Health and Safety platform, supporting compliance with the Centre for Disease Control and Prevention's COVID-19 guideline requirements for social distancing, mask screening and body temperature checks, according to a press release on June 12th 2020.. The platform delivers live and predictive situational awareness of individuals and crowds using multi-sensor technology to detect when people are less than six feet apart, congregating in groups, running a fever or not wearing masks.

This solution is particularly for the limited time in a pandemic environment, its infrastructure and other available modules such as its customer experience offering and staff and workflow management solutions are able to predict crowds and rush times, identify patterns, observe assets and monitor massive numbers of people to protect public safety year-round. All Cognize solutions adhere to data privacy regulations, are GDPR compliant and can be customized for specific business and industry needs.

DATA ANALYSIS FOR AI FOR THE POST-PANDEMIC 'NEW NORMAL' SITUATION

Only a common public health infrastructure of AI, cloud computing, streaming, and the Internet of Things can marshal our data against pandemics, By James Kobielus on MAY 14, 2020
Pandemics are shocks to communities throughout the world. Each community's response emerges from the countless changes that individuals make in their daily lives to protect themselves while trying to maintain a semblance of normality.

- Self-service health screening: In china at the time of high risk of cross infection self-service screening tools have been reduced at nonessential hospital visits and caregiver workloads. Within the country, Tencent, Alibaba, and vertical online healthcare platforms now offer remote medical services to the public. People consult with doctors online, conduct self-assessments, and decide whether to go to a hospital for further medical checks or remain at home.
- Remote medicine: Digital technologies have allowed China's healthcare professionals to apply their talents to a large number of COVID-19 cases over long distances. China's 5G networks have allowed many Wuhan hospitals to connect with counterparts in Beijing, who provide real-time consultation based on transmission of ultra-high-definition medical images.
- Supply-chain orchestration: China has used these same technologies, along with the Internet of Things, to rapidly orchestrate an entire manufacturing, logistics, and healthcare supply chain. This has enabled the country to coordinate thousands of domestic firms to build and equip hospitals for testing and treatment of COVID-19 patients. The country has been able to rapidly scale up the production of masks, protective clothing, and disinfectants.

- Location matching: China has implemented a differentiated, location-specific response to limiting COVID-19 transmission. It uses big data analytics and artificial intelligence to estimate the probability that a particular neighbourhood or individual was exposed to COVID-19. It matches the locations of smartphones to known locations of infected individuals or groups. It uses this information plus travel data to target government-mandated virus testing to high-risk individuals.

- Social distancing: Going forward, we're likely to see governments mandate AI-driven solutions for keeping people out of range of those who might be spreading infection. Proximity sensors will become ubiquitous in the aftermath of the current pandemic. Embedded in smartphones and wearables, they will feed personal digital assistants with real-time ambient intelligence on crowd conditions. Already, computer vision applications use AI to automate surveillance of people in public places, workplaces, stores, and elsewhere. Real-time AI tools will tell people if they're standing too close to each other. Wait-time metering and crowd-limiting applications will become a standard feature of many public and private facilities. And we'll see greater uptake of machine vision applications that can detect and optionally send "keep them separated" alerts when someone moves too close to someone else.

- Comprehensive biosensing: The COVID-19 emergency is accelerating the Internet of Things' sensor revolution, and there's little doubt that much of this will be built in to public infrastructure everywhere. The new normal is likely to proliferate biosensors for detecting viral pathogens in the air, water, soil, surfaces, and human and animal tissues. More commonly these biosensors will be wearables, connected socially to detect the potential spread of infections from person to person and to monitor a disease's progression among large groups of people, such as hospital patients and nursing home residents. AI-driven service robots will interrogate passers-by in public places to see if they show signs of the virus. To detect symptoms even before people realize they're infected, automated environment sensing will use multimodal AI to monitor the environment (pairing facial recognition with temperature scanning and listening to audio of people coughing). Infrared thermal imaging will enable active surveillance and screening for infected and carrier persons at borders, airports, and elsewhere in each country. We can expect governments to mandate embedded contact-tracing apps on every mobile phone.

Putting this vision in place in the post-pandemic world will require a pervasive infrastructure of AI, cloud computing, streaming, and the Internet of Things. Managed as a common public health infrastructure, these capabilities will allow humanity to close ranks against the dread diseases that threaten us all.

Getting Back to Life After the COVID-19 Pandemic with Technology as the Human Factor
The COVID-19 pandemic has locked down most of the world with close to 5.6 million confirmed cases and more than 350,000 deaths. This is devastating statistics by itself, and at the same time the entire world economy is heading toward a deep recession affecting most businesses and families.

Cognitive technologies just like machine learning, neural networks, robotic process automation, bots, neural nets, and the broader domain of AI, have the potential to transform the way we predict, react and interact with critical health and safety situations, like COVID-19. Cognitive solutions become the human factor to do more than one single mind and or an army of people can do. Artificial Intelligence (AI) and Multi-sensor Technologies solves big problems by converting analytical insights into cognitive pattern recognitions to enhance diagnosis, improve predictive interventions, and optimize productivity.

We have adapted our platform to support two specific post COVID-19 situations that institutions and companies need to be compliant with when we all get back to life. It's defined by CDC as the two main requirements: Social distancing and body temperature check.

Figure 2 Artificial Intelligence and Cognitive Computing

The Cognize proprietary cognitive platform delivers situational awareness of people positions and crowding using AI and multi-sensors to detect when people are less than 6 feet apart or in groups of more than 10 people. Imagine a care system of multiple 24/7/365 autonomous sensors that can help monitor spaces in complex scenes and correlate information much more quickly and effectively than a human mind can.
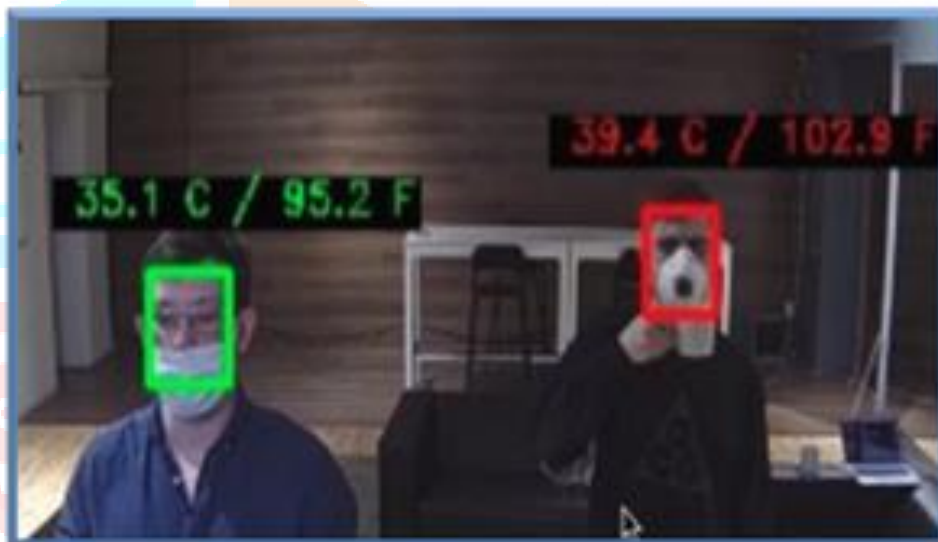

Figure 3 AI and Cognitive Computing

By applying thermal sensors and biometrics to entry points now it can be possible to monitor body temperature, with or without masks, and effectively report about situations that requires further health checks. Thermographic Cameras devices makes heat detection possible at an accurate level ±0.5° C of temperature measurements. Using infrared sensors as heat scanners with camera systems, the presence of a virus won't be confirmed, but it can detect whether the person is at risk. With a visioning system that includes a camera and display, it can reveal information and alert operators about potential risks that need to be assessed further. The Cognize Cognitive Awareness Health Solution can radically improve safety, quality of care by notifying you of critical health situations and make it possible to take action. In the right setting, at the right time.

Privacy concerns

By using robots to perform basic household tasks for those who have lost their vision or hearing, or suffer from dementia, the project hopes to ease pressure on care workers, who are often encumbered by high workloads. Researchers, care providers and the end users of assisted living services are being asked to use cloud and Internet of things technologies in which objects in the house are fitted with sensors linked to the Internet to participate remotely.

CONCLUSIONS

Healthcare organizations are in an urgent need for decision-making technologies to handle this virus and help them in getting proper suggestions in real-time to avoid its spread. AI works in a proficient way to mimic like human intelligence. It may also play a vital role in understanding and suggesting the development of a vaccine for COVID-19. This result-driven technology is used for proper screening, analyzing, prediction and tracking of current patients and likely future patients. The significant applications are applied to tracks data of confirmed, recovered and death cases.

AI is an innovative technique which is helpful to fight the covid-19 pandemic for proper screening. Tracking and predicting the current and future patients. AI is used for the development of drugs and vaccines and reduction of workload of healthcare workers.

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